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E073/E535

Field Investigations of Solar Batteries

was studied on a separate set of two batteries, whose surfaces remained unprotected for the entire period of the investigations. The electric characteristics of some separate elements and of an hermetically-sealed battery submerged in water were also investigated. For all the investigated batteries and their elements a general technique was applied for determining the basic characteristics which are necessary for evaluating their effectiveness. The graph, Fig.2, shows the operating part of the volt-ampere characteristic of one element under an illumination intensity of 0.0925 W/cm^2. The useful area of the element equalled 3.64 cm^2; the measurements were carried out at 35°C. Under optimum loading the element supplies a maximum power of 316 mW and its efficiency was 9.36%. In almost all elements the optimum load corresponds approximately to two-thirds of the no-load voltage. For determining the effectiveness of the element it is sufficient to find three characteristic points on the load curve, namely, the no-load voltage, U_{xx}, the short-circuit current, I_{K3}, and the current and voltage for the optimum load, I_H and U_H. A

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convenient parameter for evaluating the quality of a photoelectric element is the coefficient of filling of the load curve, k_H, representing the ratio of the maximum power in the case of optimal loading to the product of the no-load voltage and the short circuit current:

$$k_H = \frac{U_H \cdot I_H}{U_{x.x} \cdot I_{s.c}}$$

At the optimum voltage, the maximum value of k_H is 0.7. During the experiments the temperature of the ambient air fluctuated between 15 and 45°C; the temperature of the battery was always higher, and fluctuated between 20 and 60°C. In most cases a lower temperature corresponded to a lower intensity of solar radiation. The short-circuit current increased with increasing temperature up to 100°C and then decreased sharply. k_H decreased insignificantly up to 100°C and then decreased sharply; the efficiency at 100°C was about 50% lower than at 30°C and at 160°C it dropped to almost zero. With increasing intensity of the solar radiation k_H decreased.

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Differences in values obtained for the same temperature range during certain days are attributed to increasing losses due to resistance in the battery with increasing intensity. Comparison of data obtained in various temperature ranges for an equal zenith distance indicates that k_H decreased sharply. The change in the spectral composition had little effect on k_H, which is attributed solely to an increase in the temperature. The efficiency at an operating temperature of 45 to 50°C is about 8% lower than in the temperature range 35 to 40°C. By using mirrors with an area about 1.5 times larger than that of the solar battery, a twofold increase of the output was achieved. Protective glass reduces the conditions of heat transfer from the surface and raises the operating temperature by 20 to 30°C. Furthermore, the losses due to absorption of the glass are about 10%. A naturally transparent film permits of an efficiency about 25% higher than can be obtained if perspex is used. Submersion in water to a depth of 5 to 40 cm brought about a considerable drop in the short-circuit current, to about one-sixth at a depth of 40 cm. The no-load voltage remained unchanged up to a depth of 40 cm. The characteristics were fully maintained if the

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elements were submerged to a depth not exceeding 0.5 cm. Exposure to weather did not result in any appreciable deterioration during the entire duration of the tests. The obtained temperature-dependence of the e.m.f. confirmed the known dependence according to which the e.m.f. drops with increasing temperature at a rate of 0.00288 V/°C. Cooling is particularly important when there is concentrated illumination over long periods. In the case of low-intensity radiation during the morning (10.0 to 15.0 mW/cm^2), a power can be obtained which is equal to that obtained during higher radiation intensities. The results confirm that photoelectric transducers can operate effectively even on relatively cloudy days, and the use of radiation concentrators during such periods will ensure a power output comparable to that obtained during cloudless days. There are 8 figures and 7 references: 5 Soviet and 2 non-Soviet.

SUBMITTED: February 27, 1960

Card 6/6

DAVIDOVICH, Ya. G.

Cand Tech Sci - (diss) "Study of physico-mechanical and collector characteristics of brushes for electrical machines." Tomsk, 1961. 12 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Tomsk Order of Labor Red Banner Polytechnic Inst imeni S. M. Kirov); 150 copies; price not given; (KL, 10-61 sup, 213)

21492 S/020/61/137/004/016/031
B104/B206

24.7700 1143, 1043, 1138, 1160

AUTHORS: Fialkov, A. S. and Davidovich, Ya. G.

TITLE: The p-n -junction in carbon-graphite materials

PERIODICAL: Doklady Akademii nauk SSSR, v. 137, no. 4, 1961, 841-843

TEXT: For carbon-graphite materials the resistivity, thermo-emf and Hall effect have a marked dependence on the temperature of the heat treatment. This is in correlation with changes of the electron- and hole concentrations and the conductivity: a) with the redistribution of the electrons between the $\overline{\pi}$- and σ-bonds as a consequence of the jump of electrons from the $\overline{\pi}$ state into the σ state (formation of holes); b) with the change of the number of collectivized electrons in the crystallization of the substance and with the approach of the Fermi levels from the upper limits of the conductivity band; c) with the change of the number and type of defects during annealing; d) with the removal of acceptor-donor impurities through heat treatment. It is pointed out that treatment, production, and type of carbon-graphite materials have a great effect on the above-mentioned factors. According to the temperature of treatment, a change in conducti-

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The p-n -junction in carbon-graphite...

vity is determined which forms a real premise for the production of p-n -junctions. Investigations were made on carbon elements with 6 mm diameter and 800 mm length, which were produced by pressing a mass consisting of coke from the Khanzhenkovskiy zavod (Khanzhenkov Plant) prepared at 1200°C, lampblack from the Kudinovskiy zavod (Kudinov Plant) and binding agents. Heat treatment was done for five minutes at temperatures from 1200 to 3200°C in argon atmosphere. The specimens had the dimensions 3 • 7 • 28 mm; Hall effect and resistivity were measured in the cold state. The Hall effect was measured with d.c. at a magnetic field strength of 6000 oersteds, the resistivity with separated electrodes. It can be seen from the results shown in Fig. 1 that a maximum p-type conductivity occurs at a treatment temperature of 2200°C. The Hall effect decreases again at a further temperature rise. The authors attributed this decrease to the effect of the stable carbon oxides developed during heat treatment, and they see the possibility of bringing about a further change of the sign of the conductivity. Further experiments on the change of the Hall effect with the temperature of treatment are necessary in order to check this possibility. A two-stage heat treatment at two different temperatures was conducted with the aim of producing a p-n -junction. p-n -junctions could

thus be produced by suitable treatment. The carrier concentration in the range of the p-n -junction, calculated from the measured Hall effect, is graphically shown in Fig. 2. It turned out that the width of the p-n -junction depends on the conditions of treatment. The characteristics of two thermocouples made from suitably treated carbon-graphite material, are shown in Fig. 3. The specimens of 800 mm length had p-n -junctions in the middle. There are 3 figures and 15 references: 4 Soviet-bloc and 11 non-Soviet-bloc.

PRESENTED: November 14, 1960, by P. A. Rebinder, Academician

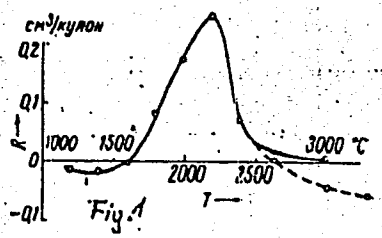
SUBMITTED: November 9, 1960

Card 3/5

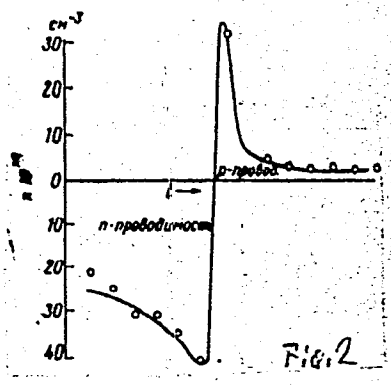
S/020/61/137/004/016/031
B104/B206

The p-n -junction in carbon-graphite...

Legend to Fig. 1: The effect of the treatment temperature on the Hall coefficient



Legend to Fig. 2: Carrier concentration in the range of the p-n -junction



Card 4/5

The p-n -junction in carbon-graphite...

Legend to Fig. 3: Thermo-emf as a function of the temperature of carbon-graphite thermo-couples.

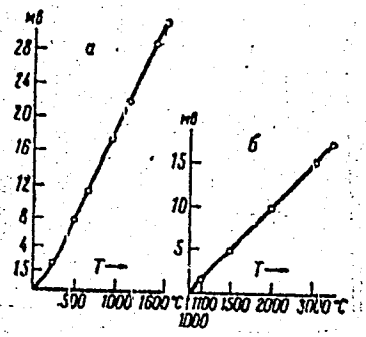


Fig. 3

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21.2300

25387
S/080/61/034/002/006/025
A057/A129

AUTHORS: Fialkov, A.S., Davidovich, Ya.G.

TITLE: Linear thermal elongation of carbon-graphite materials

PERIODICAL: Zhurnal Prikladnoy Khimii, v 34, no 2, 1961, 300-306

TEXT: The effect of composition and structure of natural graphites from various deposits on linear thermal elongation of carbon-graphite materials was investigated. This problem is important for the determination of the applicability of these materials at high temperatures, since the linear thermal expansion of carbon graphites with crystalline structure shows a marked anisotropy. Thus the linear expansion factor of graphite single crystals perpendicular to the graphite faces is $28 \cdot 10^{-6} °C^{-1}$, and in the direction of the faces at 600-800°C it is $+0.9 \cdot 10^{-6} °C^{-1}$. The ratio between these two values can be called anisotropy factor of the linear expansion and should be smaller for polycrystalline carbon-graphite ma-

Card 1/12

Linear thermal elongation ...

terials with no completely expressed three-dimensional order than for single crystals. The present experiments were carried out with mixtures of materials indicated in Table 1 using as binder a pitch (softening point 76°C) of the Gubakhinskiy zavod (Gubakhinsk Plant). The samples were pressed (1,500 and 2,850 atm), sintered (1,300°C) and the linear thermal elongation measured at temperatures from 20 to 600°C on an apparatus presented in Fig 1. The quartz tube (1) with the sample (2) is inserted in the tubular furnace (3) and the temperature is regulated by an automatic ЛАТР-1(LATR-1) transformer (4). The tube is fixed on a plate (5) which is built in the wall (6). Linear expansion is transmitted by the quartz rod (7) to the indicator (8) which is fixed on a special socket (9). The indicator could be shifted together with the tube (10) by the micrometer screw (11). The temperature was registered by an automatic millivoltmeter of the МСШПР-354 (MSShchPR-354) type. The effect of the density on the linear expansion was studied with sintered samples containing 8.5% Noginsk graphite, 42% petroleum coke and 49.5% binding coke. Linear expansion was measured also on natural graphite powders from deposits in Tayga, Botogol,

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Linear thermal elongation ...

Zaval'yevo, Kuraysk, and blast furnace graphite. The effect of the crystallization degree was studied on X-ray patterns (made by K.V. Kononova with an УРС-70 (URS-70) camera and МФ-4 (MF-4) photometer). Quantitative estimations of the graphitization degree (I_{112}/I_{110}) were made using values from F. Keesler, V. Vecerikova, Brennstoff-Chemie, 38,19/20,297 (1957), while crystallite dimensions L_a and L_c were calculated by Selyakov-Scherrer's formula (Ref 3: Ya.S. Umanskiy et al, "Rentgenografiya" ("Radiography"), Metallurgizdat (1951)). The effect of dispersion was studied on Tayga graphite with grain sizes below 45 μ, above 45 μ, and mixed sizes. The linear expansion factor was calculated from $\alpha = (l_{t_2} - l_{t_1})/l_0(t_2 - t_1)$ (1) (l_{t_2} = final dimension of the sample at the temperature t_2; l_{t_1} = initial dimension of the sample at temperature t_1; t_2 and t_1 = difference between the final and initial temperatures, l_0 = dimension of the sample - mainly the initial dimension is used). Since practically the elongation was measured, equation (1) can be written $\alpha = \Delta l_{t_2} - \Delta l_{t_1} / l_0(t_2 - t_1)$ (2) (Δl_{t_2} and Δl_{t_1} = elongation of the sample at temperatures t_2 and t_1,

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Linear thermal elongation ...

respectively) thus the relative elongation $\Delta\alpha$ is one of the characteristics and if t_2 is the initial temperature, $\Delta\alpha = \Delta l_2/l_0$. Measurements on mixtures with various carbon black and graphite content demonstrate (Fig 2) that with increasing graphite content α increases in direction of the compression, and decreases in the perpendicular direction. Characteristic change of the coefficient K_α of the anisotropy of linear expansion and of the specific electric resistance K_ρ with increasing graphite content is also observed (Fig 3). It can be seen from Fig 2 that α increases with pressure. Sharp change in α was observed after an additional increase in the density of coke-graphite samples by a twofold impregnation with coal-tar pitch and sintering (Tab 3). Decrease in dispersity effects a sharp decrease of α (Tab 4). The dependence of α on the deposit and thermal treatment of natural graphite powders is visible in Tab 5. An almost linear function of α from the relative intensity of the lines [112] to [110] on X-ray patterns and of crystallite dimensions is observed. The obtained results demonstrate the considerable dependence of α on structure and composition of carbon-graphite materials. At low graphite contents

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Linear thermal elongation ...

approximately the same values for K α and K ρ can be observed, while at higher graphite contents K α is much greater than K ρ. Characteristic changes of α observed in natural graphites of various deposits and thermal treatment can be explained by the fact that with heating to 2,500°C salt impurities are removed and an additional orientation of the crystalline graphite structure occurs. There are 5 figures, 5 tables and 3 references: 2 Soviet-bloc and 1 non-Soviet-bloc.

SUBMITTED: February 3, 1960

Card 5/12

FIALKOV, A.S.; DAVIDOVICH, Ya.G.; KONONOVA, K.V.; YURKOVSKIY, I.M.

Amorphous state of natural graphite powders. Dokl. AN SSSR 153 no.2:390-393 N '63. (MIRA 16:12)

1. Predstavleno akademikom P.A.Rebinderom.

FIALKOV, A.S.; DAVIDOVICH, Ya.G.; PROFIR'YEVA, G.A.

Interrelation of the physical and mechanical characteristics of carbon-graphitic materials. Zav. lab. 30 no.7:864-868 '64. (MIRA 18:3)

1. Filial Vsesoyuznogo nauchno-issledovatel'skogo instituta elektromekhaniki.

L 65036-65 EWP(e)/EWT(m)/EPF(c)/EWP(i)/EWP(b) WH/WW

ACCESSION NR: AP5020776 UR/0226/65/000/008/0087/0095

AUTHOR: Blalkov, A. S.; Davidovich, Ya. G.; Pshenichkin, P. A.; Galeyev, G. S.

TITLE: Magnetic susceptibility and linear thermal expansion of carbon graphite materials

SOURCE: Poroshkovaya metallurgiya, no. 8, 1965, 87-95

TOPIC TAGS: carbon, graphite, pitch material, coke, magnetic susceptibility, thermal expansion, crystal anisotropy, magnetic anisotropy

ABSTRACT: Materials tested included cracking and pyrolysis cokes, lamp black, natural graphite, and middle temperature coal distillation residue (pitch). Properties of the materials are given in a table. The samples were tested in their initial state and after calcining at different temperatures. The pressed samples, measuring 115x215x30 mm, were sintered in electric furnaces at 900C and were graphited at 2700C. The magnetic susceptibility was measured by the method of Guy. The linear expansion was measured by a contactless method up to a temperature of 3000C. The coefficient of anisotropic linear expansion, K_a, was calculated from the formula $K_a = a_{\parallel}/a_{\perp}$, where $a_{\parallel}$ and $a_{\perp}$ are the coefficients of

Card 1/2

L 65036-65

ACCESSION NR: AP5020776

linear expansion measured parallel and perpendicular to the direction of pressing. It was established that the coefficient of anisotropic linear expansion in polycrystalline carbon graphite materials, and their coefficient of anisotropic diamagnetic susceptibility, are always less than for a graphite monocrystal. The article sets up a relationship between the anisotropic diamagnetic susceptibility and the linear thermal expansion of carbon graphite materials. It is established that the coefficient of anisotropic diamagnetic susceptibility is the criterion for the development of a crystallographic grain structure in the material, and that it chiefly determines its formation in the powder form components. Maximum structural isotropy in carbon graphite materials made from petroleum cokes is attained after heat treatment at a temperature corresponding to a minimum value of the coefficient of diamagnetic susceptibility (from 600-700C). The effect of the binder content on the magnetic susceptibility and the linear expansion of carbon graphite materials is discussed. Orig. art. has: 10 figures and 2 tables

ASSOCIATION: None

SUBMITTED: 13May64 ENCL: 00 SUB CODE: IC, EM

NR REF SOV: 001 OTHER: 003

Cord 2/2

L 44178-66 EWP(e)/EWT(m) WW/WH

ACC NR: AP6011280 (A) SOURCE CODE: UR/0413/66/000/006/0157/0157

48
B

INVENTOR: Fialkov, A. S.; Davidovich, Ya. G.; Pakhomov, L. G.

ORG: none

TITLE: Treatment of carbon-graphite products. Class 21, No. 141194

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 6, 1966, 157

TOPIC TAGS: carbon graphite product, ~~current treatment~~ carbon product, graphite, physical chemistry property, semiconductivity

ABSTRACT: This Author Certificate introduces a method for treating carbon-graphite products by passing a-c and d-c current through them. To obtain a sharply defined boundary of physical, chemical, and semiconductive properties along the length of the product, current of various magnitude is passed through various sections of the product at the same time that they are subjected to various degrees of cooling.

[LD]

SUB CODE: 11/3/ SUBM DATE: 03Jan61/

accm

Card 1/1

BELINSKAYA, A.V.; BOGUSLAVSKAYA, S.A.; DUBIN, A.S.; PRUSSAK, O.V.; STARTSEV, V.I.; DAVIDOVICH, Ya.I., doktor yurid.nauk, red.; KHRUSTALEV, B.F., red.; SHILOV, L.A., red.; VOLOGLAGINA, S.D., tekhn.red.

[Socialist competition in Leningrad enterprises during the years of the first five-year plan, 1928-1932] Sotsialisticheskoe sorevnovanie na predpriiatiiakh Leningrada v gody pervoi piatiletki, 1928-1932 gg.; sbornik dokumentov i materialov. Pod red. IA.I.Davidovicha. Leningrad, Izd-vo Lening.univ., 1961. 343 p. (MIRA 14:4)

1. Leningrad. Gosudarstvennyy arkhiv Oktyabr'skoy revolyutsii i sotsialisticheskogo stroitel'stva.
(Leningrad--Socialist competition)

DAVIDOVICH, Ya. L.

Davidovich, Ya. L. "Electrical Exploration in the Region Embaneft." In the symposium: Neftianye Mestorozhdeniia Uralo-Embenskogo Raiona, Leningrad-Moscow, 1933, pp. 168-171.

LITVINSKIY, B.A.; DAVIDOVICH, Ye.A.

Preliminary information on the works of Khuttal group in the Vaksh Valley in 1953. Dokl.AN Tadzh.SSR no.11:53-60 '54. (MLRA 9:9)

1.Institut istorii, arkheologii i etnografii AN Tadzhikskoy SSR. Predstavlene deystvitel'nym chlenom AN Tadzhikskoy SSR, prof. A.A. Semenovym.
(Vaksh Valley--Excavations (Archaeology))

TOLSTOV, S.P.; KES', A.S., kand.geograf.nauk; ITINA, M.A., kand.istor. nauk; ANDRIANOV, B.V., kand.istor.nauk; ZHDANKO, T.A., kand. istor.nauk; VISHNEVSKAYA, O.A., nauchnyy sotrudnik; VAKTURSKAYA, N.N., kand.istor.nauk. Prinimali uchastiye LEVINA, L.M., aspirantka; TRUDNOVSKAYA, S.A.; DAVIDOVICH, Ye.A., kand.istor. nauk; ANDRIANOV, B.V., red.izd-va; [illegible], L.A., tekhn.red.

[The lower reaches of the Amu Darya, the Sarykamysh and the Uzboy; history of their formation and settlement] Nizov'ia Amu-Dar'i, Sarykamysh, Uzboi; istoriia formirovaniia i zaseleniia. Pod obshchei red. S.P.Tolstova. Moskva, 1960. 346 p. (Materialy Khorezmskoi ekspeditsii, no.3). (MIRA 14:2)

1. Akademiya nauk SSSR. Institut etnografii. 2. Chlen-korrespondent AN SSSR (for Tolstov). 3. Institut etnografii AN SSSR (for Levina). 4. Akademiya nauk Tadzhikskoy SSR (for Davidovich).
(Amu Darya Valley)

VINOGRADOV, M.G.; VINOGRADOVA, S.V.; DAVIDOVICH, Yu.A.; KORSHAK, V.V.

Coordination polymers. Report No.19: Properties of an inner-complex beryllium-containing polymer based on 4,4'-bis (acetoacetyl) diphenyl oxide. Izv. AN SSSR. Ser. khim. no.11: 2023-2027 N '63. (MIRA 17:1)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

L 21209-65 EWT(m)/EPF(c)/EPR/EWP(j)/T/EWP(t)/EWP(b) Pc-4/Pr-4/Pa-4
IJP(c)/RPL JD/WW/JG/RM S/0190/64/006/012/2149/2154
ACCESSION NR: AP5001479

AUTHOR: Korshak, V. V.; Vinogradova, S. V.; Vinogradov, N. G.; Davidovich, Yu. A.

TITLE: Studies in the field of coordination polymers. 22. The reversible decomposition of polymeric beryllium complexes with bis (beta-diketones) in solution

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 6, no. 12, 1964, 2149-2154

TOPIC TAGS: coordination polymer, beryllium complex, heteroorganic compound, diketone polymer, heteroorganic polymer, polymer degradation, cyclic oligomer

ABSTRACT: Polymeric beryllium intracomplexes with 4,4'-bis-(acetoacetyl)diphenyloxide and with symmetrical 4,4'-bis-(acetoacetyl)diphenylethane were prepared by a published method and shown to decompose readily in heated dilute solutions in various organic solvents, yielding low molecular weight oligomers and reforming the original polymeric complex in concentrated solutions or recovered solids at higher temperatures. The polymers were heated to 50-350C under nitrogen in 0.5-50% solutions in chlorobenzene, biphenyl, dimethylformamide, acetophenone, anisole, chloroform or tetrachloroethane. The changes in viscosity indicated a temperature dependence of the equilibrium for the reversible decomposition. A similar thermal behavior had been observed with solutions of beryllium polysebacyldiacetonate (Vysokomolekulyarnyye soyedineniya v. 6, 729, 1964). A generalized scheme for

Card 1/2

L 21209-65
ACCESSION NR: AP5001479

the reversible formation of cyclic oligomers from intracomplex beryllium polymers is proposed. Orig. art. has: 3 tables, 5 figures and 3 formulas.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR (Institute for Heteroorganic Compounds, AN SSSR)

SUBMITTED: 06Feb64 ENCL: 00 SUB CODE: OC

NO REF SOV: 003 OTHER: 001

Card 2/2

KORSHAK, V.V.; ROGOZHIN, S.V.; DAVANKOV, V.A.; DAVIDOVICH, Yu.A.; MAKAROVA, T.A.

Advances in the synthesis of polypeptides. Usp. khim. 34 no.5: 777-849 My '65. (MIRA 18:7)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

DAVIDOVICI, A.

Railroads in the second Five-Year Plan. p. 1

TEHNICA NOUA, Bucuresti, Vol 3, No. 35, Feb., 1956

SO: East European Accessions List (EEAL) Library of Congress, Vol 5, No. 7, July, 1956

GOLDSTEIN, Iosif; BARZOI, Maria; DAVIDOVICI, Cazimir

Considerations on the regional distribution of goods funds. Probleme econ 17 no.2:153-154 F 64.

1. Director, Intreprinderea Comertului cu Ridicata pentru Textile-Incaltaminte Petroseni, reg. Hundeoara (for Goldstein). 2. Seful Serv. Plan, Intreprinderea Comertului cu Ridicata pentru Textile-Incaltaminte Petrosani, reg. Hunedoara (for Barzoi). 3. Seful Serv. Comercial, Intrepriderea Comertului cu Ridicata pentru Textile-Incaltaminte Petroseni, reg. Hunedoara (for Davidovici).

tehnik;

S/194/62/000/005/041/157
D222/D309

AUTHOR: Davidovici, Marcel

TITLE: Automatic regulation of die temperature for powder press

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 5, 1962, abstract 5-2-175 i (Automat. si electron., 1961, 5, no. 4, 180-185)

TEXT: The unit described has been designed by the electro-technical scientific institute in Bucharest (RNR). The regulator is an electron tube circuit which controls an electronic HF generator of 2 kW active and 142 kva reactive power. The results of the experimental investigation of the unit are given. 9 figures. 4 references. [Abstractor's note: Complete translation].

Card 1/1

DAVIDOVICI, M.; POPESCU, I.M.; WEISS, A.M.

Realization of an installation for the constant magnetic field in the tests on the double magnetooptic resonance. Studii cerc fiz 12 no.3:631-644 '61.

1. Institutul de fizica atomica, Bucuresti.

(Magnetooptics) (Electronic instruments)
(Magnetic resonance)

S/058/62/000/010/051/093
A062/A101

AUTHORS: Davidovici, M., Popescu, I. M., Weiss, A. M.

TITLE: System devised for the constant magnetic field in magneto-optical double resonance experiments

PERIODICAL: Referativnyy zhurnal, Fizika, no. 10, 1962, 30, abstract 10V224 ("Studii şi cercetări fiz. Acad. RPR", 1961, v. 12, no. 3, 631 - 644 Rumanian; summaries in Russian and French)

TEXT: A system of Helmholtz coils for experiments on magneto-optical double resonance is described. A magnetic field stability of $2 \cdot 10^{-4}$ per hour was achieved when changing the supply voltage from +5 to -15% and the loading impedance by +20%. The field uniformity in a volume of 3x3x3 cm amounted to $\sim 10^{-4}$. The agreement obtained with calculated data was accurate to 0.35%.

[Abstracter's note: Complete translation]

Card 1/1

DAVIDOVICI, M., ing.; IANCU, Al., ing.; IONESCU, Tr., ing.; WEISS, Ad., ing.

Electronic computer for optimum load distribution among electric power plants considering the network losses. Energetica Rum 11 no.7:363-366 Jl '63.

DAVIDOVICI, P.

Struggle for quality in consumers' goods. p. 16.
STANDARDIZAREA, Bucuresti, Vol. 7, no. 6, June 1955.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, no. 10, Oct. 1955, Uncl.

DAVIDOVICS, I.

"The First Parachutist to Accomplish 200 Jumps" p. 4
"Decorations on the 36th Anniversary of the Great Socialist October Revolution" p. 4
"Aviation in the Service of Man" p. 5
"The Party is 35" p. 5
(Repulas, Vol. 6, No. 22, November, 1953, Budapest)

SO: Monthly List of East European Accessions, Vol. 3, No. 3, Library of Congress, March 1954, Uncl.

DAVIDOVSKAYA, F.G.; PLOTNIKOVA, Z.V.

Removal of a teratoma in a five-day-old child. Vop. okh. mat. i det. 3 no.1: 86-87 Ja-F '59. (MIRA 12:2)

1. Iz rodil'nogo i khirurgicheskogo otdeleniy (klinicheskikh baz Rostovskogo meditsinskogo instituta) gorodskoy bol'nitsy No.1 (glavnyy vrach - A. V. Goreshnyak) (nauchnyye rukovoditeli - zav. kafedroy akusherstva i ginekologii prof. P. Ya. Lel'chuk i zav. kafedroy obshchey khirurgii dots. P.P. Kovalenko).
(CHILDREN--SURGERY) (SACROCOCCYGEAL REGION--TUMORS)

66189

~~5 (1)~~ 15.6100

AUTHORS: Feygin, L. A., Davidovskaya, I. B. SOV/20-128-5-43/67

TITLE: On the Scientific Fundamentals of the Preparation of Colloidal Graphite Lubricants

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 5, pp 1012 - 1015 (USSR)

ABSTRACT: The applications of these lubricants are recalled in the introduction. The following problems have to be met with in their production: graphite dispersion with a degree of maximum fineness; production of aggregate-stable preparations containing minimum quantities of detrimental admixtures deteriorating the antifriction properties of the preparation. The technological schemes so far suggested are criticized for being complicated and requiring too many working processes (Refs 1-3). Also, they do not guarantee the lubricity of the preparations. It was not until P. A. Rebinder and his school (Refs 4,5) investigated these problems that a new attempt was made to approach this problem. Several difficulties arise in finely dispersing graphite in connection with processing it to heat-resistant lubricants (Refs 6-8). The authors dispersed graphite in water and organic substances in airtight cylinders in an eccentric laboratory vibrational mill

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4

On the Scientific Fundamentals of the Preparation of Colloidal Graphite Lubricants

(Ref 9). It appeared that the surface concentration of the substance on the graphite, C_S mg/m^2 (Fig 1), determines the parameter of pulverization kinetics. The dispersion rate doubles as compared with a surface of maximum purity (C_S=0) with a value of C_S=0.06 mg/m^2, i.e. with a relative filling of one-fourth of the monomolecular layer. The ratio of humidity to the surface extension of graphite rather than the humidity content is of importance. The surface extension increases in dispersion. The authors describe the disintegration process of the graphite crystals and the effect of adsorbed vapor on the crystal face. These adsorption layers promote graphite dispersion along the basic face. The following preparation scheme for graphite lubricants is suggested on account of the results obtained: A certain quantity of water (or an aqueous solution of surface-active substances) roughly corresponding to the formation of a saturated monomolecular water layer is gradually added with the increase of specific surface. A C_S-value amounting to somewhat

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On the Scientific Fundamentals of the Preparation of Colloidal Graphite Lubricants

less than 0.26 mg/m^2 is required for highly disperse preparations. The second and last process is the introduction of a corresponding quantity of e.g. the residual sulphite-spirit spent wash. The authors simultaneously solved two technological problems: They achieved (1) radical simplification of the technological scheme of producing colloidal graphite preparations, and (2) considerable improvement in the lubricity of these preparations. P. A. Rebinder, Academician, and V. N. Rozhanskiy participated in the discussion of the results. There are 1 figure and 11 Soviet references.

ASSOCIATION: Akademiya stroitel'stva i arkhitektury SSSR (Academy of Construction and Architecture, USSR)

PRESENTED: May 22, 1959, by P. A. Rebinder, Academician

SUBMITTED: May 20, 1959

Card 3/3

OZONOVSKAYA, M.M. [Azanouskaia, M.M.]; DAVIDOVSKAYA, L.A. [Davidouskaia, L.A.]

Capacity of compounds of monovalent copper salts for reacting with esters of phosphorous acid. Vestsi AN BSSR. Ser. fiz.-tekh. nav. no.1:30-33 '59. (MIRA 12:6)
(Copper salts) (Phosphorous acid)

69021

5.2620

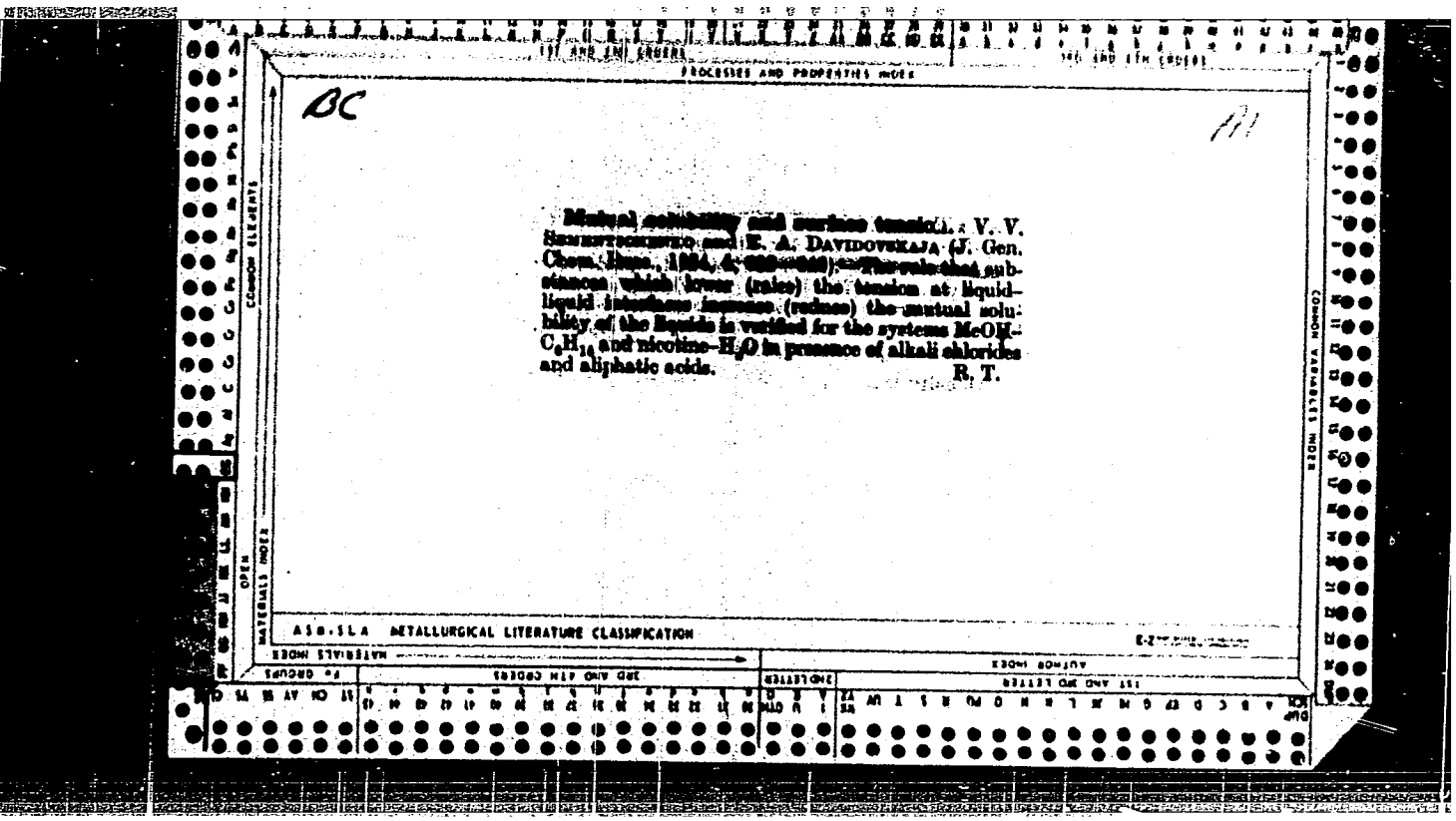
AUTHORS: Azanovskaya, M. M., Davidovskaya, L. A. S/078/60/005/04/016/040
B004/B007

TITLE: The Reactivity of the Complex Compounds of Monovalent Copper With Esters of the Phosphorous Acid

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol 5, Nr 4, pp 870 - 873 (USSR)

ABSTRACT: The authors refer to a paper dealing with this problem by A. Ye. Arbuzov (Ref 1). When studying the complexes of the monohalogen compounds of copper with esters of the phosphorous acids, they found that compounds of the type $[CuHal.P(OR)_3]_3$ may enter into reaction with amines, nitrogen-containing heterocyclic compounds, arsines, and esters of the phosphorous acid according to the equation $[CuHal.P(OR)_3]_3 + 3A \rightarrow 3CuHalP(OR)_3.A$, where in the compounds investigated by the authors Hal means Cl, Br, I; R = C_2H_5, iso-C_3H_7, C_6H_5, and A = triethylamine, aniline, pyridine, quinoline, triphenylarsine, trimethylphosphite, triethylphosphite, and tri-isopropyl phosphite. A cleavage of the trimeric complex occurs, accompanied by formation of mixed complex compounds. The authors proved that this reaction is reversible. On the basis of their experimental data, they arrive at the

Card 1/2

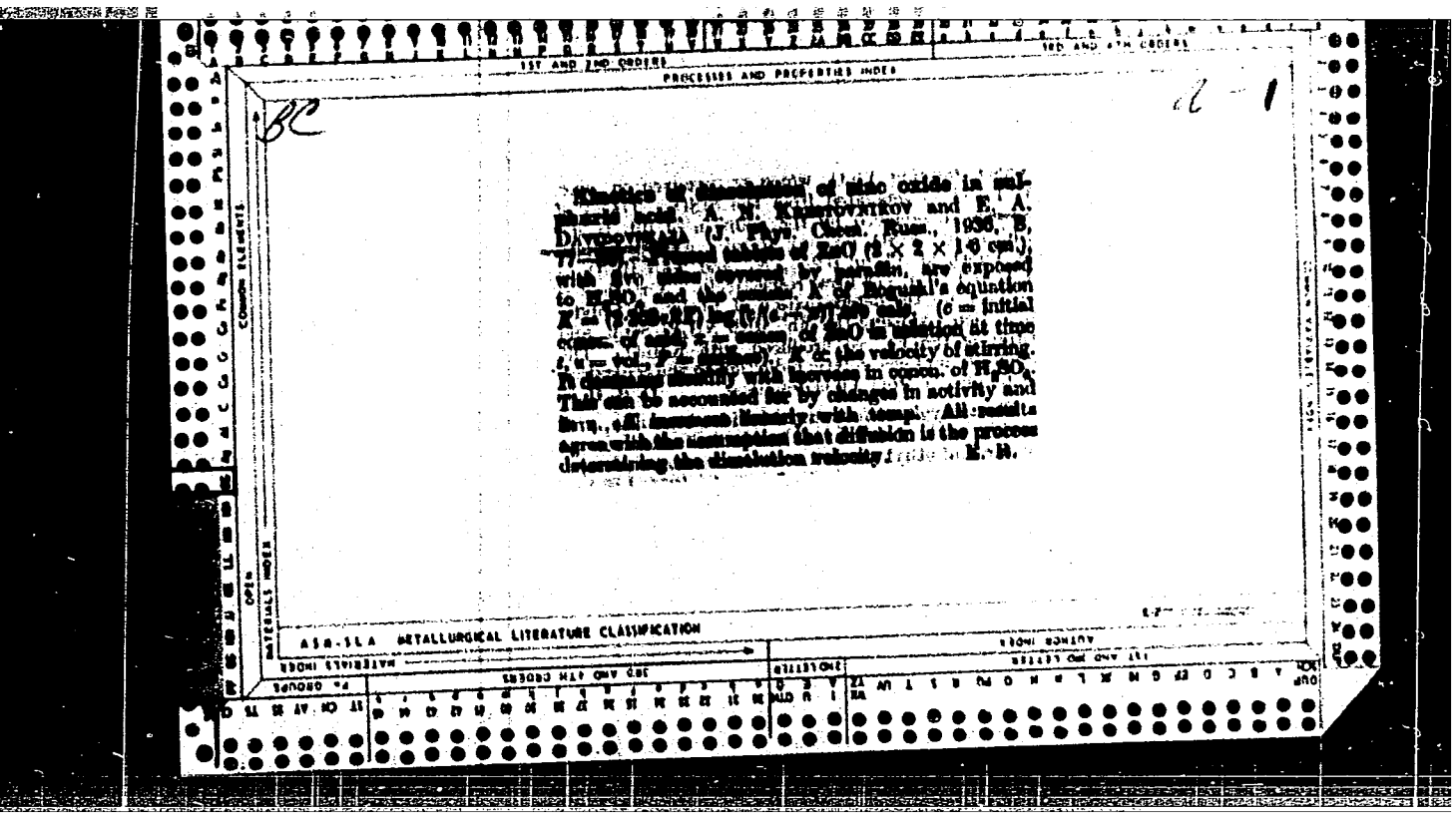


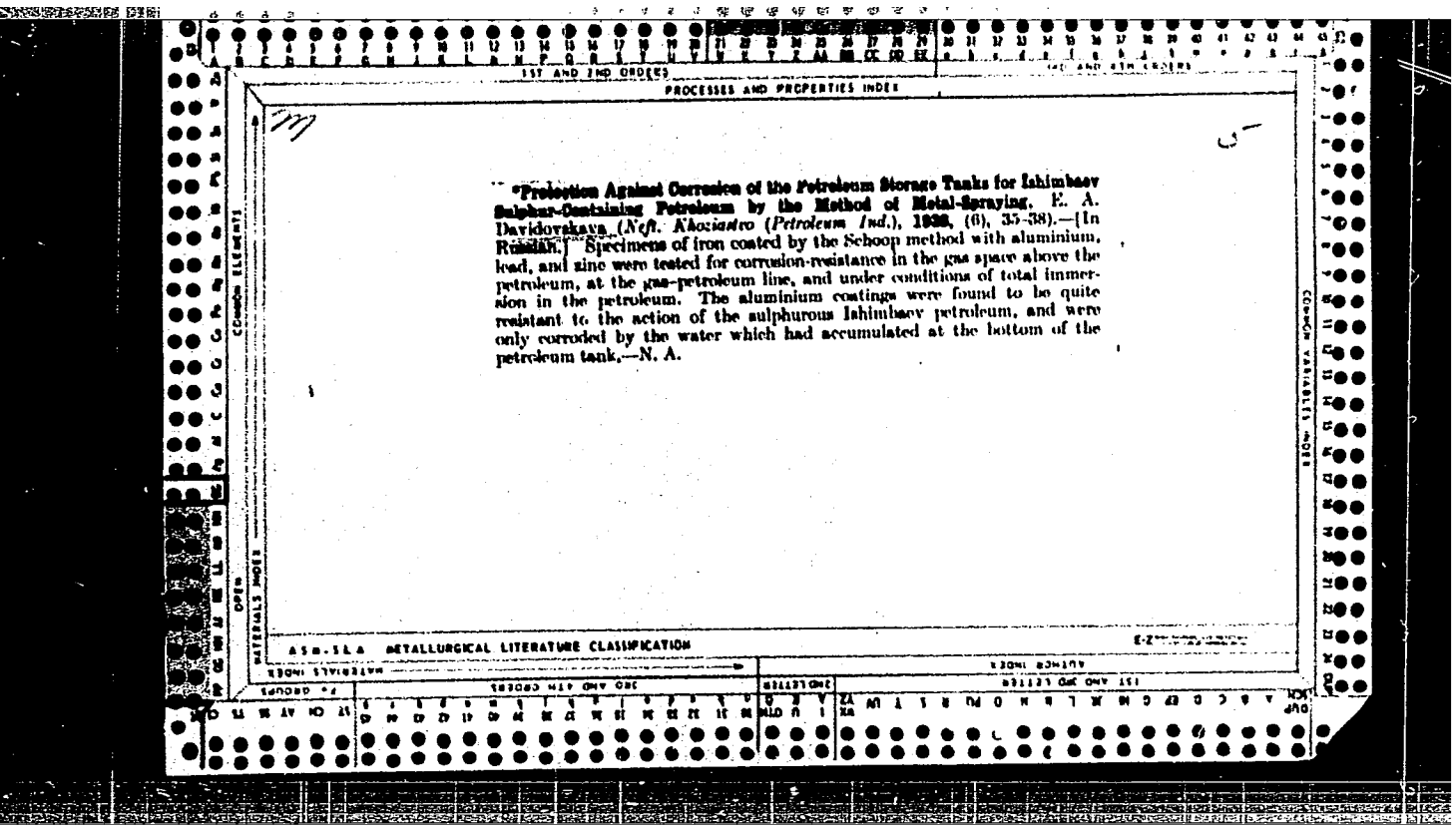
BC

AII

Mutual solubility and surface tension. V. V. SAFRONOVSKIJ and E. A. DAVIDOVSKAJA (J. Gen. Chem. [Russ.], 1934, 4, 668–673).—The substances which lower (raise) the tension at liquid–liquid interfaces increase (reduce) the mutual solubility of the liquids is verified for the systems MeOH–C_6H_{14} and nicotine–H_2O in presence of alkali chlorides and aliphatic acids. R. T.

A 38-SLA METALLURGICAL LITERATURE CLASSIFICATION



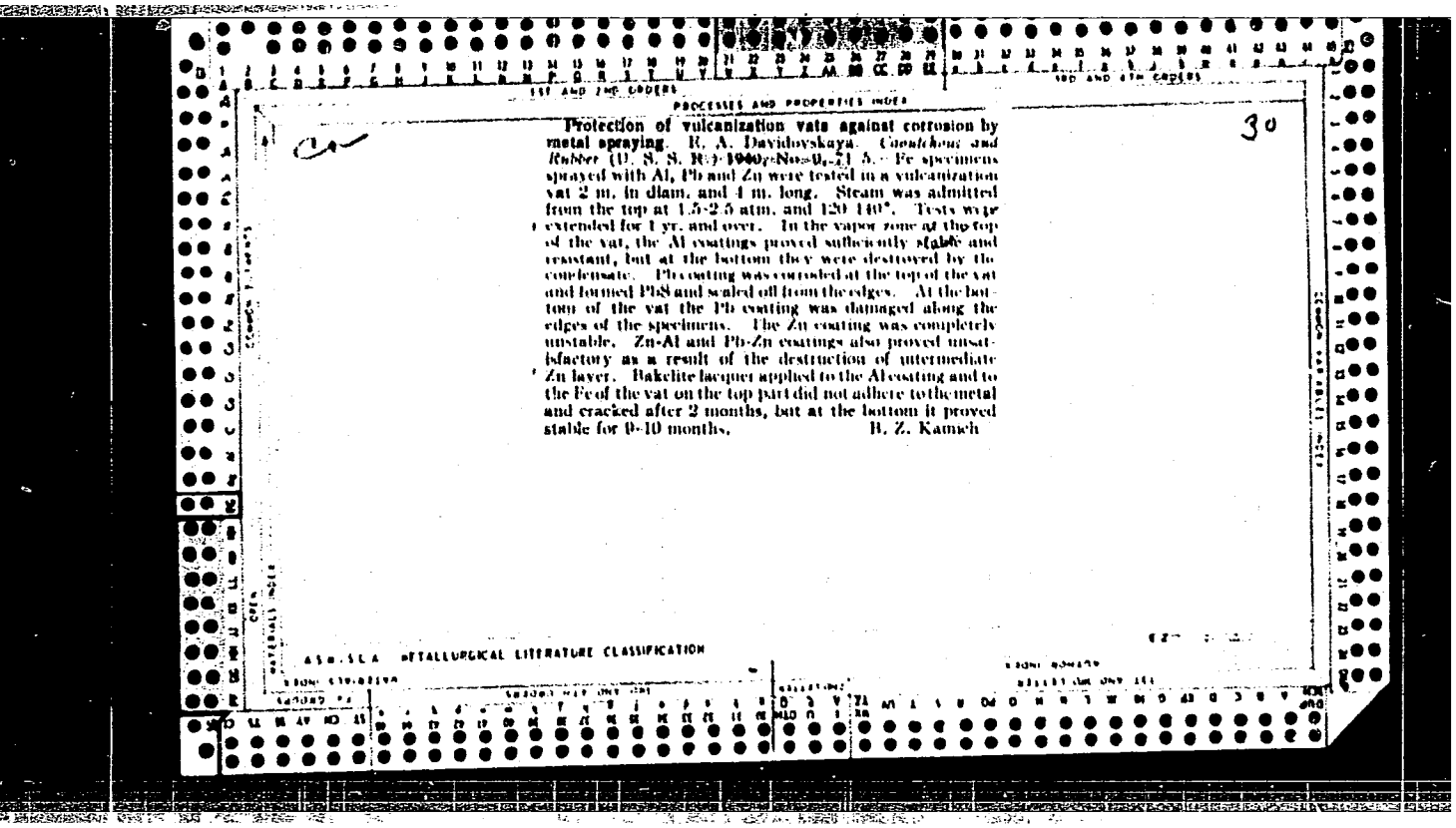


1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

"Protection Against Corrosion of the Petroleum Storage Tanks for Ishimbaev Sulphur-Containing Petroleum by the Method of Metal-Spraying. E. A. Davidovskaya (*Neft. Khoziaistvo* (*Petroleum Ind.*), 1938, (6), 35-38).—[In Russian.] Specimens of iron coated by the Schoop method with aluminium, lead, and zinc were tested for corrosion-resistance in the gas space above the petroleum, at the gas-petroleum line, and under conditions of total immersion in the petroleum. The aluminium coatings were found to be quite resistant to the action of the sulphurous Ishimbaev petroleum, and were only corroded by the water which had accumulated at the bottom of the petroleum tank.—N. A.

A.S.M.-S.L.A. METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES INDEX

30

Protection of vulcanization vats against corrosion by metal spraying. R. A. Davidovskaya. *Caoutchouc and Rubber* (U. S. S. R.) 1940, No. 3, 21-5.—Fe specimens sprayed with Al, Pb and Zn were tested in a vulcanization vat 2 m. in diam. and 4 m. long. Steam was admitted from the top at 1.5-2.5 atm. and 120-140°. Tests were extended for 1 yr. and over. In the vapor zone at the top of the vat, the Al coatings proved sufficiently stable and resistant, but at the bottom they were destroyed by the condensate. Pb coating was corroded at the top of the vat and formed PbS and scaled off from the edges. At the bottom of the vat the Pb coating was damaged along the edges of the specimens. The Zn coating was completely unstable. Zn-Al and Pb-Zn coatings also proved unsatisfactory as a result of the destruction of intermediate Zn layer. Bakelite lacquer applied to the Al coating and to the Fe of the vat on the top part did not adhere to the metal and cracked after 2 months, but at the bottom it proved stable for 9-10 months. B. Z. Kamush

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

DAVIDOVSKAYA, YE. A.
25565

Metallizatsiya kak sredstvo zashchity ot korrosii. V sb: Korroziya, zashchita ot korrozii i elektroliz. M. , 1948, s. 86-138
--Bibliogr: 58 Nazv.

SO: LETOPIS NO. 30, 1948

DAVIDOVSKAYA, E. A.

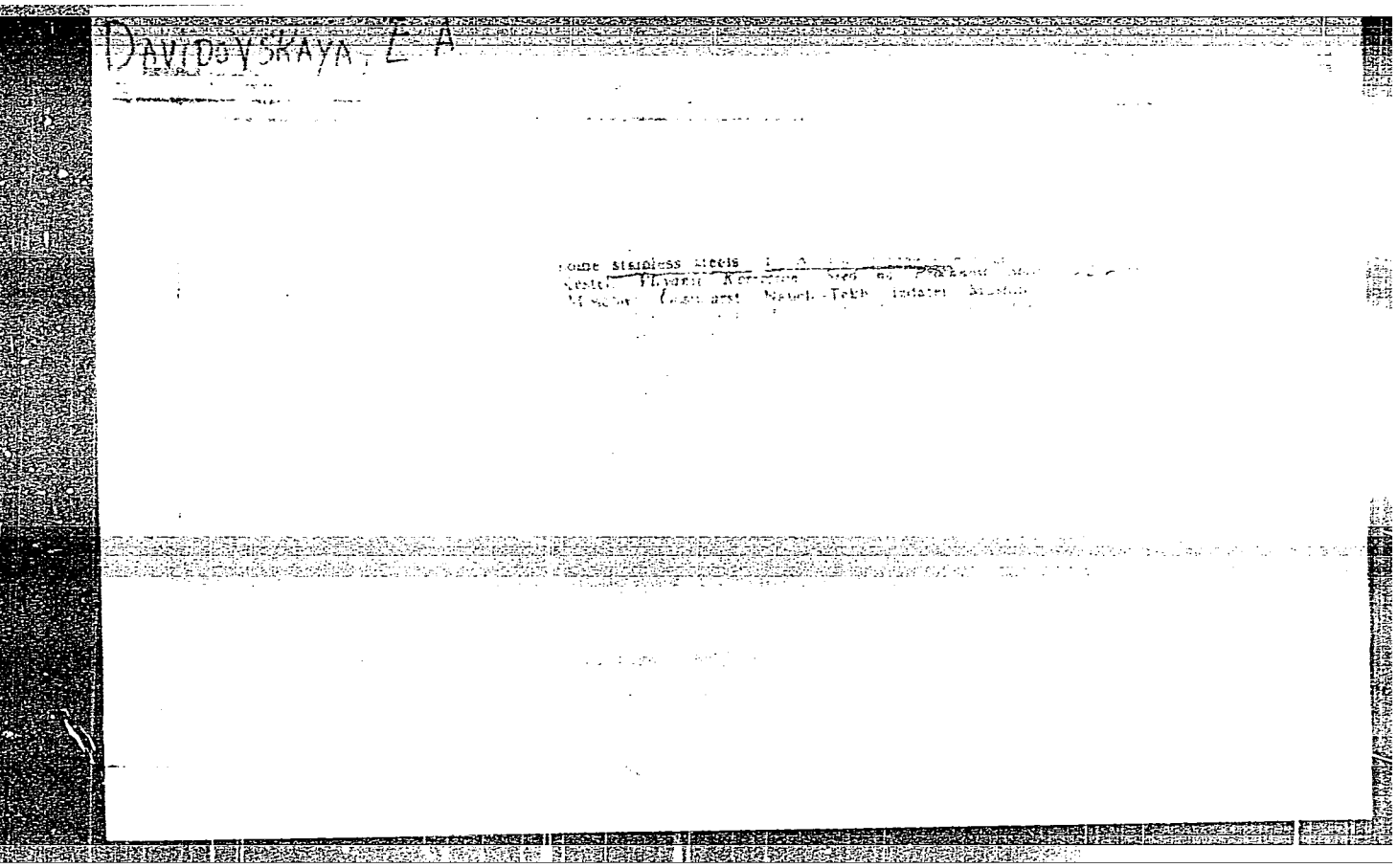
RT-1567 (The study of corrosion stability of boiler steels under the action of high temperature steam) Izuchenie korrozionnoi stoikosti kotel'nykh stalei pod vozdeistviem para vysokikh temperatur. Pages 62-76 from:
KORROZIIA METALLOV POD NAPRIAZHENIEM I SPOSOBY ZASHCHITY. Moscow, 1950. (Orginal Russian source unavailable for review)

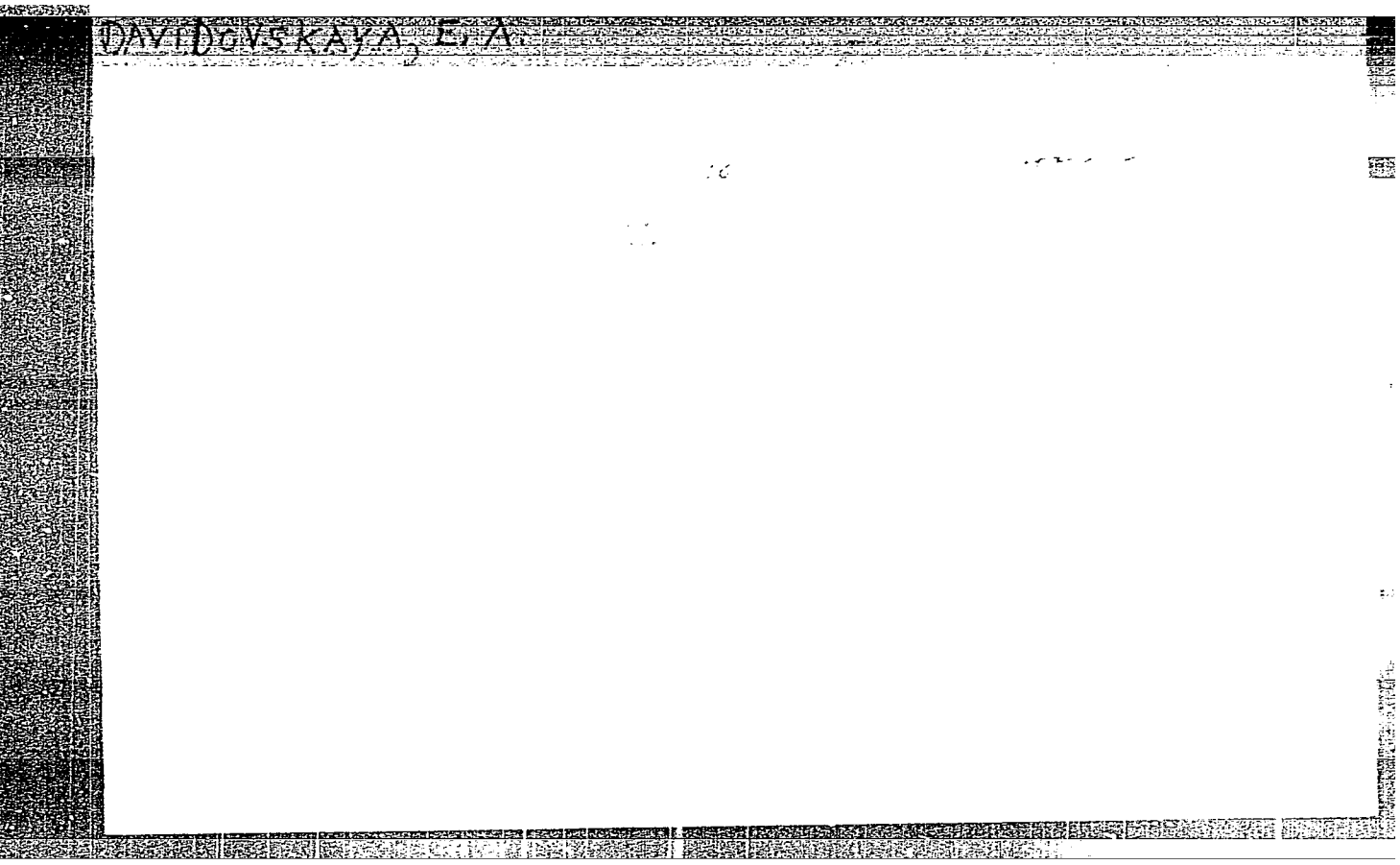
DAVIDOVSKAYA, Ye. A. Cand Tech Sci. and KESTEL', L. P. Engineer

"Method of Testing Steel for Gas Corrosion at High Temperatures," one of eight articles appearing in the book: "Investigation of the Stress Corrosion of Metals," edited by G.V.Akimov, Mashgiz, Moscow, 1953

Central Sci Res Inst of Technolgoy and Machine Bldg.

Translation M-31586, 15 Dec 55

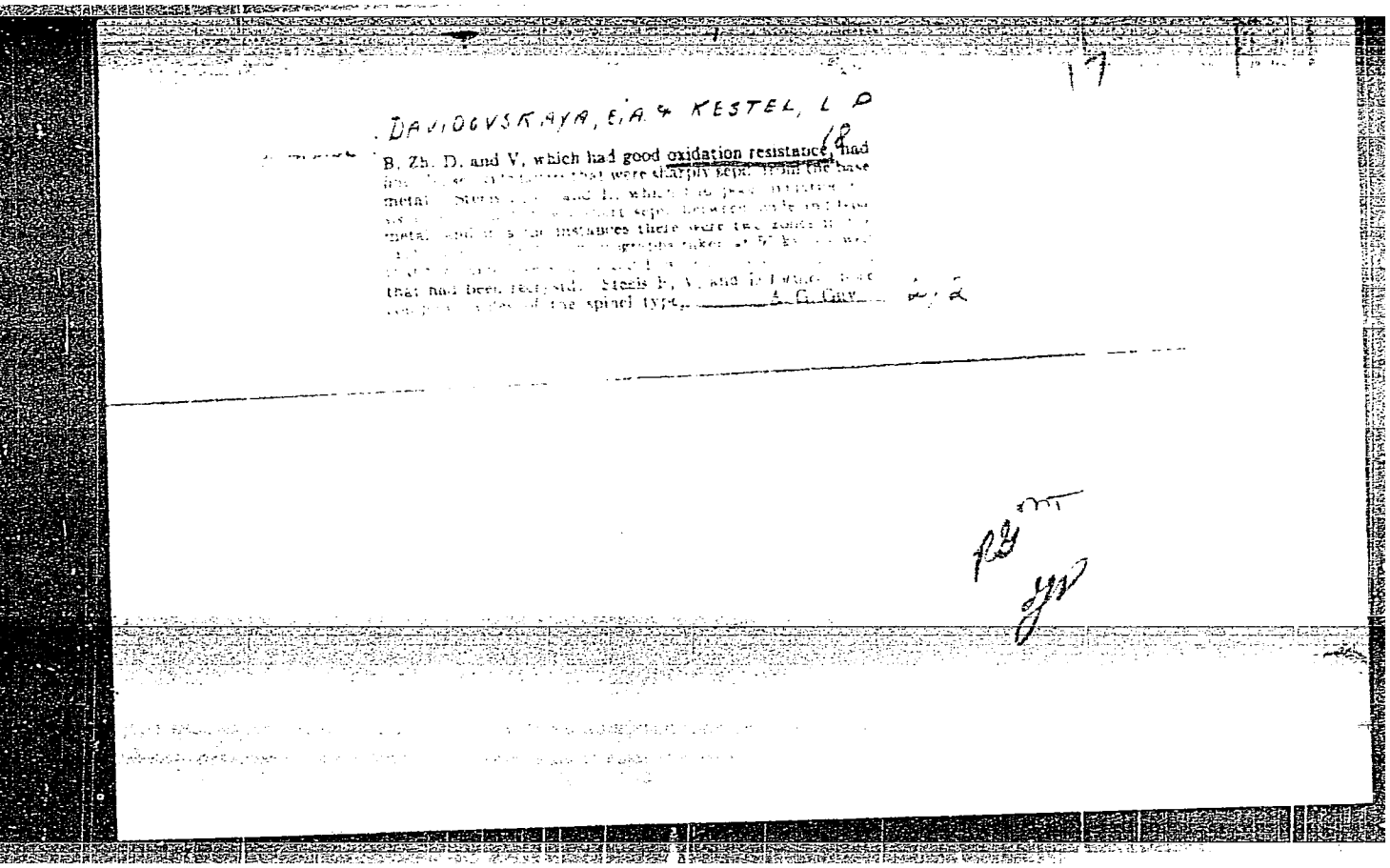




AVRASIN, Ya.D., kandidat tekhnicheskikh nauk; BERG, P.P., professor, doktor tekhnicheskikh nauk, BERNSHTEYN, M.L., kandidat tekhnicheskikh nauk; GENEROZOV, P.A., starshiy nauchnyy sotrudnik; GLINER, B.M., inzhener; DAVIDOVSKAYA, Ya.A., kandidat tekhnicheskikh nauk; YELCHIN, P.M., inzhener; YEREMIN, N.I., kandidat fiziko-matematicheskikh nauk; IVANOV, D.P., kandidat tekhnicheskikh nauk; KNOROZ, L.I., inzhener; KOBRIN, M.M., kandidat tekhnicheskikh nauk; KORITSKIY, V.G., dotsent; KROTKOV, D.V., inzhener; KUDRYAVTSEV, I.V., professor, doktor tekhnicheskikh nauk; KULIKOV, I.V., kandidat tekhnicheskikh nauk; LEPETOV, V.A., kandidat tekhnicheskikh nauk; LIKINA, A.F., inzhener; MATVEYEV, A.S., kandidat tekhnicheskikh nauk; MIL'MAN, B.S., kandidat tekhnicheskikh nauk; PAVLUSHKIN, N.M., kandidat tekhnicheskikh nauk; PTITSYN, V.I., inzhener [deceased]; RAKOVSKIY, V.S., kandidat tekhnicheskikh nauk, RAKHSHTADT, A.G., kandidat tekhnicheskikh nauk; RYABCHENKOV, A.V., professor, doktor khimicheskikh nauk; SIGOLAYEV, S.Ya., kandidat tekhnicheskikh nauk; SMIRYAGIN, A.P., kandidat tekhnicheskikh nauk, SUL'KIN, A.G., inzhener; TUTOV, I.Ye., kandidat tekhnicheskikh nauk, KHRUSHCHOV, M.M., professor, doktor tekhnicheskikh nauk; TSYPIN, I.O., kandidat tekhnicheskikh nauk; SHAROV, M.Ya., inzhener; SHERMAN, Ya.I., dotsent; SHMELEV, B.A., kandidat tekhnicheskikh nauk; YUGANOVA, S.A., kandidat fiziko-matematicheskikh nauk; SATEL', E.A., doktor tekhnicheskikh nauk, redaktor; SOKOLOVA, T.F., tekhnicheskiy redaktor

[Machine builder's reference book] Spravochnik mashinostroitelia; v shesti tomakh. izd-vo mashinostroit. lit-ry. Vol.6. (Glav. red.toma E.A.Satel'. Izd. 2-oe, ispr. i dop.) 1956. 500 p. (MLRA 9:8)
(Machinery--Construction)

Gaseous corrosion of austenitic steels at high temperatures. E. A. Davydovskaya and [illegible] Kestel. [illegible] 29-24.—Specimens of [illegible] high-temp. steels 60 × 20 × 2.5 mm. were [illegible] treated, high-temp. steels [illegible] revolved at 100-120 r.p.m. within [illegible] metically sealed furnace through which the [illegible] flowed. The corrosion product on the surface [illegible] was [illegible] by making the specimen [illegible] 2 to 3 mm. at [illegible] After the corrosion product was washed off [illegible] detd. The steels tested were identified in the figures by the following letters: D, EI417 (Fe-Cr-Ni steel); V, EI89 (Fe-Cr-Ni-Co-W); B, EI405 (Fe-Cr-Ni-Mo); G, EI434 (Fe-Cr-Ni-base Ni-Cr); L, LA (cast Cr-Ni-Mo); B, EI437 [illegible] EI075 (Cr-Ni [illegible] base [illegible] EXa1 [illegible] The results of testing [illegible] were not given. [illegible] hrs. were plotted [illegible] hrs., steels [illegible] while the values for [illegible] Testing at 55 [illegible] was also done [illegible] city gas to which 0.3% SO_2 was added [illegible] analysis of this gaseous atm. was CO_2 18 [illegible] and SO_2 0.25-0.3%. The wt. losses after [illegible] D, [illegible] B, [illegible] V, [illegible] 25.2. A third type of testing [illegible] in the gases from a test gas-turbine set [illegible] was CO_2 3.2, O_2 17.05, N_2 [illegible] After 420 hrs. the wt. losses [illegible] 20, [illegible] 30. Metallographic exam. showed [illegible]



DAVIDOVSKAYA, E.A. & KESTEL, L.P.

B, Zh, D, and V, which had good oxidation resistance, had

that had been tested. Steels B, V, and D

Davidovskaya, Ye. A.

129-3-4/14

AUTHORS: Gel'man, A.S., Griboyedova, T.S., Ye.A. Davidovskaya, Lazarev, B.I., Lyubavskiy, K.V., Slepak, E.S., Trunin, I.I. and Fedortsov-Lutikov, G.P.

TITLE: Investigation of the Steel 1X18H12T as Tube Material for Power-generation Equipment (Issledovaniye stali 1Kh18N12T v kachestve trubnogo materiala dlya energoustanovok)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, No.3, pp. 16 - 24 (USSR).

ABSTRACT: For producing tubes operating at super-critical steam parameters, it is necessary to have available a cheap, strong and ductile material which has a stable structure and stable properties at 550 to 650 °C, is not inclined to develop inter-crystallite corrosion and possesses good technological properties. The work carried out in 1952 and 1953 by TsNIITMASh jointly with the imeni Ordzhonikidze Works (Ref.1) proved that it was possible to utilise cheap steel of the type 1X18H9T for operation at high temperatures. Later, complex investigations were carried out with this steel as a material for tubes of super-critical parameter power-generation equipment. The steel 1X18H9T may contain large quantities of ferrite and, after long-duration annealing at 600 to 700 °C, it embrittles due to the formation of a σ-phase. Increase in the nickel content

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Investigation of the Steel 1X18H12T as Tube Material for Power-generation Equipment

heat-treated in accordance with these recommendations are entered in Table 6, p.24, for test temperatures of 20, 600, 650 and 700 °C. Practically no embrittlement takes place for this steel after ageing at 600 and 750 °C for durations of 3 000 to 10 000 hours; no σ-phase formation could be detected after such ageing for steel containing 12% Ni, whilst under similar conditions, σ-phase formation can occur in steel containing 10 % Ni. Preliminary, non-uniform work-hardening influences the ultimate strength of the steel, but does not influence appreciably the ductility in the case of long-duration loading. In the case of contact-welding of tubes of superheaters, the strength of non-heat-treated weld joints is not lower than that of the base metal. Steam at 600 °C and long-duration tests for up to 3 000 hours do not affect appreciably the long-duration strength of the steel and of welded joints. The steels 1X18H12T and 1X18H9T are less inclined to develop thermal fatigue than the steel 1X14H14B2M, and the authors recommend using the steel 1X18H12T for tubes of power-generating equipment, operating with steam of super-critical parameters. There are 5 figures, 6 tables and 8 references,
Card3/4 5 of which are Russian, and 3 English.

129-3-4/14

Investigation of the Steel 1X18H12T as Tube Material for Power-generation Equipment

ASSOCIATION: TsNIITMASh

AVAILABLE: Library of Congress

Card 4/4

DAVIDOVSKAYA, Yelena Aleksandrovna, kand. tekhn. nauk; KESTEL', Lyubov' Prokof'yevna, inzh.; URYUPINA, Yekaterina Ivanovna, kand. tekhn. nauk; RAGAZINA, M.F., inzh., ved. red.; SAMOKHOTSKIY, A.I., inzh., red.; PONOMAREV, V.A., tekhn.red.

[Effect of heat treatment on the tendency in stainless steel toward intercrystalline corrosion] Vliianie termicheskoi obrabotki na sklonnost' nerzhaveiushchikh stalei k mezhkristallitnoi korrozii. Moskva, Filial Vses. in-ta nauchn. i tekhn. informatsii, 1958. 11 p. (Peredovoi nauchno-tekhnicheskii i proizvodstvennyi opyt. Tema 13. No.M-58-15/1) (MIRA 16:3)
(Steel, Stainless—Corrosion)
(Metals, Effect of temperature on)

DAVIDOVSKAYA, Ye.A., kand.tekhn.nauk; KESTEL', L.P., inzh.

Investigating the heat resistance of alloyed steels in various gas media. Energomashinostroenie 4 no.11:15-19 N '58.
(Steel alloys) (MIRA 11:11)

129-58-8-6/16

AUTHORS: Davidovskaya, Ye. A., Candidate of Technical Science and ~~Kestel', L. P.,~~ Engineer

TITLE: Investigation of the Influence of Super-Heated Water Vapour on the Long Duration Strength of Austenitic Steel (Issledovaniye vliyaniya peregretogo vodyanogo para na dlitel'nuyu prochnost' austenitnoy stali)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, Nr 8, pp 29-33 (USSR)

ABSTRACT: The aim of the work described in this paper was to study the influence of super-heated steam on the long duration strength of the Steel EI257 at 600°C. The test specimens were produced from cut-offs of tubes of 102/68 mm; the blanks were first hardened from 1150°C in water. The chemical composition and the mechanical properties of the steel of the individual specimens are entered in Tables 1 and 2, p 30. The specimens were of 4 mm dia. with a test length of 25 mm. The long duration strength tests were effected on test machines VP-8. The test rig for testing in the gaseous medium consisted of a steam generator, a steam super-heater and a furnace, a schematic sketch of which is reproduced in Fig.1, p.30. Comparative tests

Card 1/4

were effected for two types of heat treatment, namely, hardening and hardening followed by tempering at 750°C for ten hours. After hardening, the structure consisted of austenite with a small quantity of carbide separations predominantly along the grain boundaries; in this state the steel is chemically stable and does not tend to develop inter-crystallite corrosion. However, after short duration annealing at 600-800°C considerable quantities of the carbide phase separate out from the solid solution; the chemical stability of the steel is appreciably reduced and it becomes prone to inter-crystallite corrosion. Therefore, the investigations were carried out using two differing types of heat treatment and the results are entered in Table 3 and graphed in Fig.2a. It can be seen that the time to failure is practically equal in super-heated steam and in air; it can be seen from Fig.2 that the stress-time to failure relation is represented in logarithmic coordinates by a straight line without any discontinuity. After tempering (at 750°C for ten hours), the steel showed great

Investigation of the Influence of Super-Heated Water Vapour on the Long Duration Strength of Austenitic Steel

inclination to inter-crystallite corrosion and was less stable and in such a state the steel must not be used for operation in liquid media. The actual results of tensile tests at 600°C in such a state are entered in Table 4 (for air and super-heated steam). The long duration strength of this steel was also investigated in super-heated steam at 600°C in presence of a molten alkali and the results are entered in Table 5. The carried out tests indicate that pure super-heated steam which does not contain any salt admixtures does not reduce the strength of this steel at high temperatures. However, the presence of salts which become deposited on such steel may reduce appreciably the strength characteristics and, therefore, in practical operation it is essential to purify carefully the super-heated steam from salt contaminations.

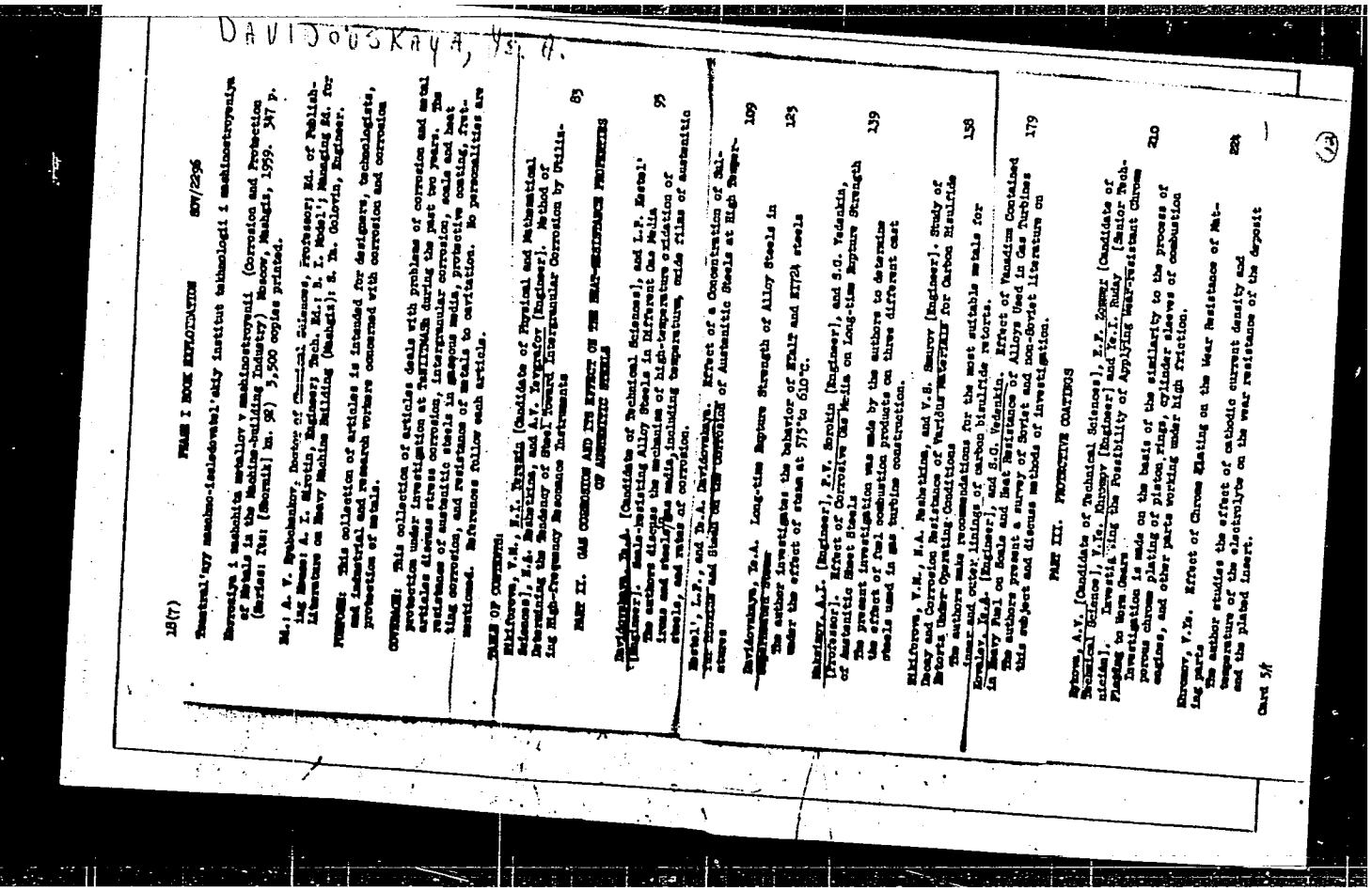
Investigation of the Influence of Super-Heated Water Vapour on the Long Duration Strength of Austenitic Steel 129-58-8-6/16

There are 3 figures, 5 tables and 1 Soviet reference.

ASSOCIATION: TsNIITMASh

1. Steel--Mechanical properties 2. Steel--Test methods
3. Steel--Temperature factors 4. Steam--Applications

Card 4/4



DAVIDOVSKAYA, Ye. A.

18(7) PHASE I BOOK EXPLOITATION SOV/2296

Vsesoyuznyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya

Korroziya i metallicheskiye pokrytiya v mashinostroyenii (Corrosion and Protection of Metals in the Machine-building Industry) Moscow, Mashgiz, 1959. 347 p. (Series: Its: [Sbornik] No. 98) 3,500 copies printed.

Ed.: A. V. Bykhovskiy, Doctor of Chemical Sciences, Professor; Ed. of Publishing House: A. I. Krotin, Engineer; Tech. Ed.: B. I. Rodel'; Managing Ed. for Literature on Heavy Machine Building (Mashgiz): S. Ya. Golovin, Engineer.

PURPOSE: This collection of articles is intended for designers, technologists, and industrial and research workers concerned with corrosion and corrosion protection of metals.

COVERAGE: This collection of articles deals with problems of corrosion and metal protection under investigation at TSNIITMASh during the past two years. The articles discuss stress corrosion, intergranular corrosion, scale and heat resistance of austenitic steels in gaseous media, protective coating, fretting corrosion, and resistance of metals to cavitation. No personalities are mentioned. References follow each article.

TABLE OF CONTENTS:

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DAVIDOVSKAYA, Ye.A., kand.tekhn.nauk; KESTEL', L.P., inzh.

Heat resistance of austenite steels in gaseous media.
[Trudy] TSNIITMASH 100:59-69 '59. (MIRA 13:7)
(Heat-resistant alloys)
(Steel--Metallurgy)

MAKSIMOV, A.I., inzh.; SOROKIN, P.V., inzh.; DAVIDOVSKAYA, Ye.A., kand. tekhn.nauk; VEDENKIN, S.G., prof.

Long-time strength of austenite steels in fuel combustion products and in superheated steam. [Trudy] TSNIITMASH 100:70-89 '59. (MIRA 13:7)
(Heat-resistant alloys)

DAVIDOVSKAYA, YE. A.

PHASE I BOOK EXPLOITATION SOV/4535

Vsesoyuznyy sovet nauchno-tekhnicheskikh obshchestv

Mezhkristallitnaya korroziya i korroziya metallov v napryazhennom sostoyanii (Intercrystalline and Stress Corrosion of Metals) Moscow, Mashgiz, 1960. 358 p. 3,000 copies printed.

Ed.: I.A. Levin, Candidate of Technical Sciences; Ed. of Publishing House: I.I. Lesnichenko, Engineer; Tech. Ed.: V.D. El'kind; Managing Ed. for Literature on Metalworking and Instrument Making (Mashgiz): V.V. Rzhavinskiy, Engineer; Editorial Board: I.A. Levin, Candidate of Technical Sciences (Chairman), V.P. Batrakov, Candidate of Technical Sciences, V.M. Nikiforova, Candidate of Technical Sciences, and A.V. Turkovskaya, Candidate of Technical Sciences.

PURPOSE: This collection of articles is intended for technical personnel concerned with problems of corrosion of metals.

COVERAGE: The collection contains discussions of intercrystalline corrosion of stainless steels and stress corrosion of carbon steels, low-alloy and stainless steels, and light-weight and nonferrous alloys. The tendency of steels of various composition and system to corrode under certain conditions is discussed and the nature of corrosion and corrosion cracking is analyzed. No personalities are mentioned. Most of the articles are accompanied by bibliographic references, the majority of which are Soviet.

II. INTERCRYSTALLINE CORROSION OF STAINLESS STEELS

Card 4/9

S/137/61/000/008/031/037
A060/A101

AUTHOR: Davidovskaya, Ye. A.

TITLE: Endurance of alloy steels in superheated steam

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 8, 1961, 15, abstract 8I113 ("Korroziya i zashchita metallov v mashinostr." [TsNIITMASh, book 92] Moscow, 1959, 125 - 138)

TEXT: A study was made of the effect of a superheated steam environment upon the endurance of steel ЭЯ1Т and ЭИ724 (EYa1T and EI724) designed for the manufacture of steam conduits and steam superheaters for superhigh-parameter boilers. It was established that the superheated steam environment at 600°C has no great effect upon the endurance of steel EYa1T and EI724 both for the base metal and for welded joints. An investigation of the endurance of steel EYa1T from different heats subjected to the same heat-treatment has shown that the smelting technique and the forging conditions have a considerably greater effect upon the σ_{end} than the gaseous medium surrounding the specimens. No effect of the superheated steam environment upon the ductility characteristics of both

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S/137/61/000/008/031/037
A060/A101

Endurance of alloy steels in superheated steam

steels has been discovered. Metallographic investigation did not establish an activating role of the superheated steam environment upon structural changes in the steel or the form of the fracture.

V. Tarisova

[Abstracter's note: Complete translation]

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26573
S/129/61/000/008/006/015
E073/E335

18.1111

AUTHOR: Davidovskaya, Ye.A., Candidate of Technical Sciences

TITLE: Influence of Some Alloying Elements on the Heat-resistance of the Steel 15Kh1M1F (15Kh1M1F)

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, 1961, No. 8, pp. 26 - 28

TEXT: Low-alloy pearlitic steels are extensively used in high-temperature, high-pressure boiler construction. Intensified oxidation of these steels begins at 600 - 650 °C. certain gaseous media, e.g. water vapour or air with an admixture of moisture and sulphur compounds, may intensify oxidation at lower temperatures. The aim of the work was to find a means of improving the heat-resistance of pearlitic steels intended for operation in boilers, at 600 °C. The influence of various alloying elements on the resistance-to-corrosion in air and steam at 600 °C was investigated on the steel 15Kh1M1F. 19 heats (of 10 kg each) were produced. The following individual alloying elements were used (concentration in %):

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Chromium	1; 2; 4.6
Silicon	0.3; 0.9; 1.5; 2.5
Aluminium	0.5; 1; 1.5; 2
Tungsten	1; 2; 3
Cobalt	1; 2; 3
Boron	0.05; 0.1 .

The specimens were made of material which was subjected to heating to 1 020 °C for 1.5 hours, cooling in the switched-off furnace to 700 °C, followed by cooling air with subsequent tempering at 720 °C for 5 hours. The refractoriness in terms of weight increase was investigated at 600 °C for 500 hours; the specimens were weighed after residence times of 25, 50, 75, 100, 150, 200, 300, 400 and 500 hours. The following conclusions were arrived at; 1) the influence of individual alloying elements on the resistance-to-corrosion of pearlitic steels at 600 °C depends on the ambient gaseous medium. 2) Additions of Al, Si, Cr and B showed the most favourable influence on the refractoriness of the steel 15KhlM1F in air; an increase in the concentration of these elements brought about a considerable

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decrease in the rate of oxidation. 3) The following steels have the highest refractoriness in air at 600 °C (weight increase 1 mg/cm^2): 15Kh4M1F (15Kh4M1F); 15Kh6M1F (15Kh6M1F); 15Kh1M1FS2 (15Kh1M1FS2); 15Kh1M1F3Kh (15Kh1M1F3Kh); 15Kh1M1F2Yu (15Kh1M1F2Yu); 15Kh1M1FV (15Kh1M1FV) and 15Kh1M1FR (15Kh1M1FR). 4) Addition of 2-3% Co has little influence in improving the refractoriness in air of the steel 15Kh1M1F. 5) The process of oxidation of the studied steels in air at 600 °C can be basically expressed by a parametric dependence. However, for some of the more refractory steels the validity of a logarithmic dependence was established. 6) Addition of each of the six alloying elements in various concentrations had hardly any influence on reducing oxidation of steel 15 and steel 15Kh1M1F in superheated steam; the rate of corrosion of all the steels was within the limits 5.5 - 7.5 mg/cm^2. 7) The most likely method of improving the corrosion-resistance of pearlitic steel at elevated temperatures

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in steam is to increase the chromium content to 6% and more. Oxidation of the investigated pearlitic steels in steam at 600 °C proceeds in accordance with the parabolic relation. There are 2 figures and 1 table.

ASSOCIATION: TsNIITMASh

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ZHOKHOV, P.I., inzh.; PERN, G.V., inzh.; DAVIDOVICH, Ye.M., inzh.; GABINOVA, Sh.L., vrach; VASIL'YEVA, A.A., vrach; POPOV, B.V., vrach

Effect of smog in the air on landscape plantings. Gor.khoz.Mosk. 35 no.5:19-21 My '61. (MIRA 14:6)
(Moscow--Smog)

DAVIDOVSKIY, G.M.

Tillage system for fall-plowed fallow in piedmont and arid mountain-steppe regions of the Armenian S.S.R. Izv.AN Arm. SSR. Biol. i sel'khoz. nauki 2 no.2:195-199 '49. (MLRA 9:8)

1. Leninakanskaya gosudarstvennaya selektsionnaya stantsiya.
(ARMENIA—TILLAGE)

DAVIDOVSKIY, G.M.

Some biological features of sainfoin cultivation. Report no. 1.
Izv.AN Arm.SSR.Biol.i sel'khoz.nauki. 4 no.7:633-647 '51.
(MLRA 9:8)

1. Leninakanskaya gosudarstvennaya selektsionnaya stantsiya.
(Shiraki Steppe--Sainfoin)

DAVIDOVSKIY, G.M.

Some biological features of sainfoin cultivation. Report no. 2.
Izv.AN Arm.SSR.Biol.i sel'khoz.nauki 4. no.8:721-733 '51.
(MLRA 9:8)

1. Leninakanskaya gosudarstvennaya selektsionnaya stantsiya.
(Shiraki Steppe--Sainfoin)

DAVIDOVSKIY, G.M.

DAVIDOVSKIY, G.M.

Fall sowing of spring wheat and seed culture. Izv.An Arm.SSR.Biol.i sel'khoz.nauki. 5 no.8:15-24 '52. (MLRA 9:8)

1. Gosudarstvennaya selektsionnaya stantsiya, Leniniakan.
(Armenia--Wheat)

DAVIDOVSKIY, G.M.

Rational utilization of the sod of perennial grasses. Izv.AN Arm. SSR.Biol.i sel'khoz.nauki. 5 no.9:45-51 '52. (MLRA 9:8)

1. Gosudarstvennaya selektsionnaya stantsiya, g. Leninakan.
(Armenia--Rotation of crops) (Grasses)

DAVIDOVSKIY, G.M.

Interspecific relations between weeds and cultivated plants.
Izv. AN Arm. SSR. Biol. nauki 15 no.2:49-59 '62. (MIRA 15:3)

1. Leninakanskaya selektsionnaya stantsiya.
(WEED CONTROL)
(PLANTS, CULTIVATED)

SHEYNKIN, B.L.; DAVIDOVSKIY, I.Z.

Rapid construction of a blast furnace for the Orsk-Khalilovo Metallurgical Combine. Prom. stroi. 37 no.1:45-50 Ja '59. (MIRA 12:1)

1.Trest Stal'montazh.
(Orsk-Khalolovi Industrial District--Blast furnaces)

DAVIDOVSKIY, L. Ya. Cand Med Sci -- (diss) "On certain variations in ~~the~~ conditioned-reflex and vegetative nervous activity ~~in rheumatic children~~ in relation to ~~the~~ forms of rheumatism in children" [Minsk, 1959]. 12 pp (Minsk State Med Inst). (KL, 52-59, 125)

DAVIDOVSKIY, L.Ya. (Vitebsk)

Mechanism of the so-called oculocardiac reflex. Zdrav.Belor. 5 no.6:40-42 Je '59. (MIRA 12:9)
(REFLEXES) (BLOOD--CIRCULATION)

DAVIDOVSKIY, L.Ya.; DAURANOV, I.G.

Serum proteins in experimental allergic carditis. Vop.med. khim. 11 no.5:46-48 S-O '65.

(MIRA 19:1)

1. Kazakhskiy nauchno-issledovatel'skiy institut okhrany materinstva i detstva, Alma-Ata. Submitted April 16, 1964.

ALEKSEYENKO, I.Ye., inzh.; DAVIDOVSKIY, M.M., inzh.

Repairing buttresses of suction pipes. Gidr.stroi. 30 no.8: 18-21 Ag '60. (MIRA 13:8)
(Dnieper Hydroelectric Power Station)

OCHERETYANYY, I.F., inzh.; DAVIDOVSKIY, M.M.

Major restoration and repair of the bituminous keys in the Dnieper lock. Gidr. stroi. 32 no.1:24-25 Ja '62. (MIRA 15:3)
(Dnieper Hydroelectric Power Station--Locks (Hydraulic engineering)--Maintenance and repair)

DAVIDOVSKIY, N. M. PA 12/49T96

USSR/Medicine - Nervous System Jul 48
Medicine - Arrhythmia

"Cases of Fluttering Arrhythmia Caused by Nerves," N. M. Davidovskiy, Faculty Therapeutic Clinic, First Leningrad Med Inst imeni Acad I. P. Pavlov, 7¼ pp

"Klinicheskaya Meditsina" Vol XXVI, No 7

In the immediate postwar period, cases of fluttering arrhythmia, in which organic disease of the heart and hyperthyreosis were absent, were comparatively frequent at author's clinic. Five of such cases are described in detail and discussed. Cardiograms reproduced.

12/49T96

DAVIDOVSKIY, N.M.

BARANOV, V.G., professor; DRACHINSKAYA, Ye.S.; DAVIDOVSKIY, N.M.

Preoperative care of patients with toxic goiter [with summary in English p.153] Vest.khir. 77 no.12:86-91 D '56. (MLRA 10:2)

1. Iz laboratorii vozrastnoy fiziologii i patologii cheloveka (zav. - prof. V.G.Baranov) Instituta fiziologii im. I.P.Pavlova (dir. - akad. K.M.Bykov) Akademii nauk SSSR, fakul'tetskoy khirurgicheskoy kliniki (zav. - prof. A.V.Mel'nikov) i fakul'tetskoy terapevticheskoy kliniki (zav. - prof. T.S.Istamanova) 1-go Leningradskogo meditsinskogo instituta im. I.P.Pavlova. 2. Chlen-korrespondent AMN SSSR (for Baranov) Adres Baranova: Leningrad, pr.Dobrolyubova, d.13, kv.5.

(HYPERTHYROIDISM, surg.
preop. care)
(PREOPERATIVE CARE, in various dis.
hyperthyroidism)

DAVIDOVSKIY, N. M.

Country : USSR
Category : Pharmacology and Toxicology. Ganglionic Blocking Preparations
Abs. Jour. : Ref Zhur-Biol, No 13, 1958, No 61419

Author : Davidovskiy, N. M.
Institut. : -
Title : Treatment of Angina Pectoris Patients with the Ganglionic Blocking Preparation Ganglerone

Orig Pub. : Terapevt. arkhiv, 1957, 29, No 4, 51-58

Abstract : Ganglerone was used therapeutically in 80 angina pectoris patients. Satisfactory to excellent results were obtained in 65% of the patients, and definite improvement in 31%. In four patients, the treatment was ineffective. Aggravation was noted in none. Ganglerone was administered orally and subcutaneously in doses of 2-4 ml. of 1.5% solution three times and, in cases of severe forms of angina pectoris, four times daily. From the 2nd-3rd day, subcutaneous administration of

Card: 1/2

1. Iz kafedry fakul'tetskoy terapii (zav.-prof. T.S. Istamanova) I Leningradskogo meditsinskogo meditsinskogo institute imeni I.P. Pavlova.

DAVIDOVSKIY, N. M., Candidate Med Sci (diss) -- "The use of the new cholinolytic preparation gangleron to treat patients with angina pectoris". Leningrad, 1959. 16 pp (Min Health RSFSR, First Leningrad Med Inst im Acad I. P. Pavlov), 200 copies (KL, No 25, 1959, 140)

DAVIDOVSKIY, N.M. (Leningrad)

Materials on the clinical use of kvateron, a new gaglion blocking agent, in the treatment of patients with angina pectoris. Terap. arkh. 34 no.10:55-58 0'62 (MIRA 17:4)

1. Iz kafedry fakul'tetskoy terapii (zav. - prof. T.S. Istamanova) I Leningradskogo meditsinskogo instituta imeni I.P.Pavlova i Instituta tonkoy organicheskoy khimii (dir. - akademik AN Armyanskoy SSR prof. A.L. Mndzhoyan), Akademii nauk Armyanskoy SSR.

DAVIDOVSKIY, O. N. PA 46/49T38

USSR/Engineering Aug 48
Fuel Conservation
Turbines

"A Signal System Guaranteeing Turbine Units Against Uneconomical Operation," O. N. Davidovskiy, Engr, 3 pp

"Za Ekonomiyu Topliva" Vol V, No 8

Diagram and operation of a device which prevents turbogenerators from operating uneconomically (under parallel operation). Device works from the small opening of overload valves on the turbine.

[redacted] 46/49T38

DAVIDOVSKIY, O. N.

PA 54/49T57

USSR/Engineering
Turbines
Corrosion

Dec 48

"Possibility of Lengthening the Period Between General Overhauls of Steam Turbines," O. N. Davidovskiy, Engr, 7 pp

"Elek Stants" No 12

Recommends change in overhaul schedule from annual to 12,000-15,000 hours of operation. Examines nature of general overhaul and factors which determine overhaul periods, influence of corrosion, vibrational wear of turbine blades, etc. Analyzes actual operating data.

[redacted] 54/49T57

USSR/Engineering (Contd)

Dec 48

Points out feasibility and beneficial economic effects of scheduling turbine overhauls on basis of operating time rather than annually.

[redacted] 54/49T57

DAVIDOVSKIY, O.N.

AID P - 1946

Subject : USSR/Engineering

Card 1/1 Pub. 29 - 26/31

Author : Davidovskiy, O. N.

Title : Damaging level gears of speed reducers

Periodical : Energetik, 3, 37-38, Mr 1955

Abstract : In reply to a question from a reader, the author explains the cause of damage to surfaces of geared speed reducers. This is the result of repeated cyclical loading with a cycle compression-expansion, which may create tensions surpassing the limit of surface fatigue of the material. It can be avoided by a thorough machining of the gears, which will give at least an 80% contact of working surfaces.

Institution: None

Submitted : No date

VOLAROVICH, M.P.; GAMAYUNOV, N.I.; DAVIDOVSKIY, P.N.

Study of the diffusion process in a porous medium (peat) by the radioactive-tracer technique. Koll.zhur. 26 no.1:139-140 Ja-F '64. (MIRA 17:4)

1. Kalininskiy torfyanoy institut i Institut torfa, Minsk.

VOLAROVICH, M.P.; GAMAYUNOV, N.I.; DAVIDOVSKIY, P.N.

Gamma-spectroscopic kinetic study of the heat and moisture conductivity of disperse materials. Koll. zhur. 27 no.1:3-7 Ja-F '65. (MIRA 18:3)

1. Kalininskiy torfyanoy institut i Vsesoyuznyy nauchno-issledovatel'skiy institut torfa, Monsk.

VOLAROVICH, M.P.; DAVIDOVSKIY, P.N.; GAMAYUNOV, N.I.

Effect of the moisture content and structure on the mechanism of heat and moisture transfer in peat. Koll. zhur. 27 no.2: 167-171 Mr-Ap '65. (MIRA 18:6)

1. Kalininskiy torfyanoy institut i Vsesoyuznyy nauchno-issledovatel'skiy institut torfa, Minsk.

DAVIDOVSKIY, S.N.

Preventing damage to bearings of centrifugal governors of turbines. Energetik 4 no.1:39 Ja '56. (MIRA 9:4)
(Turbines)

L 11934-63 EWT(1)/EWG(k)/BDS/EEC(b)-2/ES(w)-2 AFFTC/ASD/ESD-3/
AFWL/SSD Pi-4/Po-4/Pab-4/Ps-4 AT/IJP(C)/DM

ACCESSION NR: AP3003977 S/0089/63/015/001/0060/0061

82

AUTHOR: Davidovskiy, V. G.

TITLE: Plasma oscillations with spatial non-uniformity in a magnetic field

SOURCE: Atomnaya energiya, v. 15, no. 1, 1963, 60-61

TOPIC TAGS: magnetohydrodynamics, plasma oscillation, plasma

ABSTRACT: The stability of a magnetized, rarified spatially nonuniform plasma is discussed with respect to short-wavelengths, collisionless oscillations. The latter may result in an anomalous diffusion, e.e., to a slow removal of plasma from the system. In the present work, a dispersion equation is set up for oscillations of plasma which has gradients of temperature and density. The qualitative result of the computations is given in a diagram depicting the velocity distribution function for ions and electrons. Only a negligible fraction of ions enters into resonance with oscillations, but a considerable fraction of electrons does. "The author is grateful to P. Z. Sagdeyev for suggestions and to V. N. Oraevskiy for a valuable discussion." Orig. art. has: 1 figure.

ASSOCIATION: none

SUBMITTED: 18Oct62 DATE ACQ: 08Aug63 ENCL: 00

SUB CODE: PH NO REF SOV: 005 OTHER: 000 Card 1/1

ACCESSION NR: AP4042000 S/0057/64/034/007/1242/1251

AUTHOR: Davidovskiy, V.G.; Dubovoy, L.V.; Ponomarenko, A.G.

TITLE: The resonance probe in a plasma in a magnetic field

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.7, 1964, 1242-1251

TOPIC TAGS: plasma, plasma diagnostics, resonance probe, magnetic field plasma effect

ABSTRACT: This paper is concerned with the applicability of the resonance probe (L.Tonks,Phys.Rev.37,1458,1931; T.H.Jeung and I.Sayers,Proc.Phys.Soc.70B,663,1957) as a diagnostic tool in the investigation of a plasma in a magnetic field. The method consists in observing the oscillations excited in the plasma by a small probe field of frequency near the Langmuir frequency. In the absence of a magnetic field one can derive the electron concentration from the resonant frequency, and the collision frequency from the width of the resonance. The authors derive the dispersion equation for a plasma in a magnetic field and show that in addition to the resonance at the Langmuir frequency ($V = 1$), there are resonances at $V = 1 \pm \sqrt{U}$ and, under some conditions, at $V = 1-U$. Here $V = f_0^2/f^2$, $U = f_H^2/f^2$, and f_0, f_H and f are the

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